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ABSTRACT

This is one form of three performance checks booklets (A, B, and C) for two texts of Level III of the Intermediate Science Curriculum Study (ISCS). These two texts are Environmental Science (ES) and Well-Being (WB). The 12 performance checks booklets for Level III are considered one of four major subdivisions of a set of individualized evaluation materials for Level III of the ISCS. This booklet (form B), developed to assess the students' achievement of the objectives of the ES and WB of Level III, contains a set of performance checks which are equivalent to the performance checks of the two forms (A and C). Each performance check has its own code number which indicates the unit number and identifies whether it is based on core material or excursions. Directions for students' use of performance checks are also included. (HM)

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ED178281

INTERMEDIATE SCIENCE CURRICULUM STUDY

ISCS

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INDIVIDUALIZED TESTING SYSTEM

Performance Checks

ISCS LEVEL III
ES-WB
FORM B

SE 028 474

SILVER BURDETT
GENERAL LEARNING CORPORATION
Morristown, New Jersey · Park Ridge, Ill. · Palo Alto · Dallas · Atlanta

INDIVIDUALIZED TESTING SYSTEM

ALL LEVELS	**Individualizing Objective Testing** (an ITP module) **Evaluating and Reporting Progress** (an ITP module)
LEVEL I	**Performance Objectives**, ISCS Level I **Performance Checks**, ISCS Level I, Forms A, B, and C **Performance Assessment Resources**, ISCS Level I, Parts 1 and 2
LEVEL II	**Performance Objectives**, ISCS Level II **Performance Checks**, ISCS Level II, Forms A, B, and C **Performance Assessment Resources**, ISCS Level II, Parts 1 and 2
LEVEL III	**Performance Objectives**, ISCS Level III **Performance Checks**, ISCS Level III, ES-WB, Forms A, B, and C WYY-IV, Forms A, B, and C IO-WU, Forms A, B, and C WW-CP, Forms A, B, and C **Performance Assessment Resources**, ISCS Level III, ES-WB WYY-IV IO-WU WW-CP

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FOREWORD

To implement an educational approach successfully, one must match the philosophy of evaluation with that of instruction. This is particularly true when individualization is the key element in the educational approach. Yet, as important as it is to achieve this match, the task is by no means simple for the teacher. In fact, without specific resource materials to help him, he is apt to find the task overwhelming. For this reason, ISCS has developed a set of individualized evaluation materials as part of its Individualized Teacher Preparation (ITP) program. These materials are designed to assist teachers in their transition to individualized instruction and to help them tailor their assessment of students' progress to the needs of all their students.

The two modules concerned with evaluation, *Individualizing Objective Testing* and *Evaluating and Reporting Progress*, can be used by small groups of teachers in in-service settings or by individual teachers in a local school environment. Hopefully, they will do more than give each teacher an overview of individualized evaluation. These ITP modules suggest key strategies for achieving both subjective and objective evaluation of each student's progress. And to make it easier for teachers to put such strategies into practice, ISCS has produced the associated booklets entitled *Performance Objectives, Performance Assessment Resources*, and *Performance Checks*. Using these materials, the teacher can objectively assess the student's mastery of the processes, skills, and subject matter of the ISCS program. And the teacher can obtain, at the moment when they are needed, specific suggestions for remedying the student's identified deficiencies.

If you are an ISCS teacher, selective use of these materials will guide you in developing an individualized evaluation program best suited to your own settings and thus further enhance the individualized character of your ISCS program.

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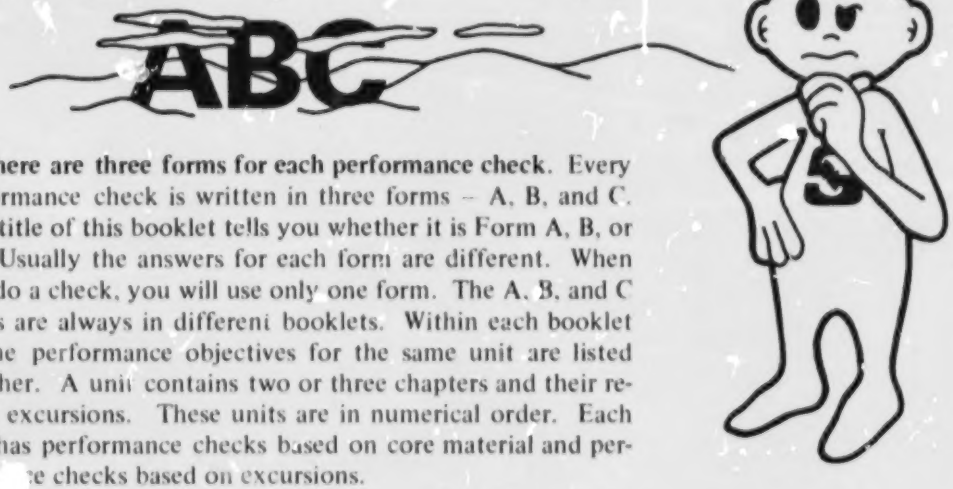
NOTES TO THE STUDENT

Now that you have completed several chapters, excursions, and self-evaluations, you are ready to help your teacher determine how well you are doing. The performance checks in this book will provide your teacher with this information. Then your teacher can help you with things you may not understand and can keep a record of your progress.

Read the next section carefully. It explains some important things about the performance checks in this book, and it gives you specific suggestions for using them.

What You Need To Know about Performance Checks

1. **You do performance checks when you are ready.** Performance checks are somewhat like the questions in the self-evaluations – you do them when you are ready, not when the whole class is ready.
2. **Your teacher or both of you decide how many you do.** Your teacher or you and your teacher together will decide which ones you should do. You are not expected to do all of the performance checks.



3. **There are three forms for each performance check.** Every performance check is written in three forms – A, B, and C. (The title of this booklet tells you whether it is Form A, B, or C.) Usually the answers for each form are different. When you do a check, you will use only one form. The A, B, and C forms are always in different booklets. Within each booklet all the performance objectives for the same unit are listed together. A unit contains two or three chapters and their related excursions. These units are in numerical order. Each unit has performance checks based on core material and performance checks based on excursions.
4. **Each performance check has its own number.** The number is in the outside margin of the page and will look like this: ES-03-Core-17A or WB-01-Exc 2-2-2A. These numbers mean

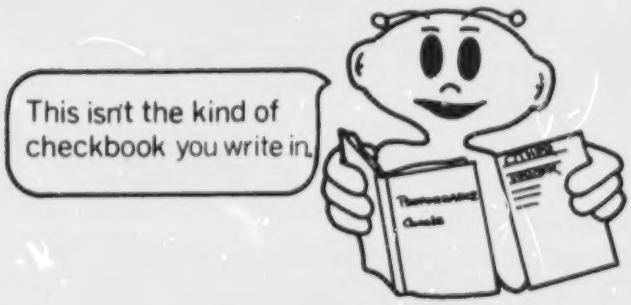
ES	-	03	-	Core	-	17	A	and	WB	-	01	-	Exc	2-2	-	2	A
text		unit		based on core material		check number	form of the check		text		unit		based on excursion material	excursion number		check number	form of the check

5. **Each performance check is separated from the other.** There is a line before each performance check and one after it. Some performance checks have several parts, so do everything called for between the lines. If there is no line at the bottom of a page, the check is continued onto the next page.

6. **Sometimes you will need to use equipment.** If special materials are needed, they will be in boxes labeled with the same number and sometimes the same letter too as the performance check for which you need them.

7. **Some performance checks have two or more answers.** If more than one answer is correct, you must select all the correct choices. In such cases, selecting just one answer is not enough.

8. **Some performance checks have no answers.** Occasionally, you may be asked to do something that is impossible and to explain your answer. If so, say that the task is impossible and explain why.



9. **You share books of performance checks and YOU DO NOT WRITE IN THEM.** Write your answers on other paper. Give the number and form of the performance check for each answer you write. If you are to draw a graph, a chart, or a map, your teacher may provide you with grid paper or a copy of the map or chart.

10. **Your teacher or his assistant will collect and mark your checks.** And sometimes you must ask him to watch or assist you as you do a check.

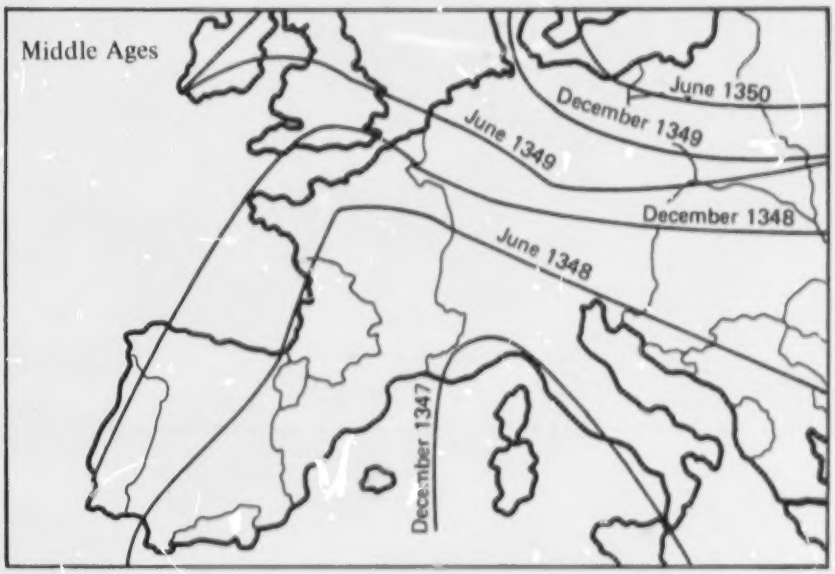
11. **Sometimes a review procedure will be suggested.** If you can't do a performance check, you may be asked to review a part of the text or a self-evaluation question. You may then be checked on the same material, so be sure you understand the material you review. Get help if you need it.

Environmental Science **ES**

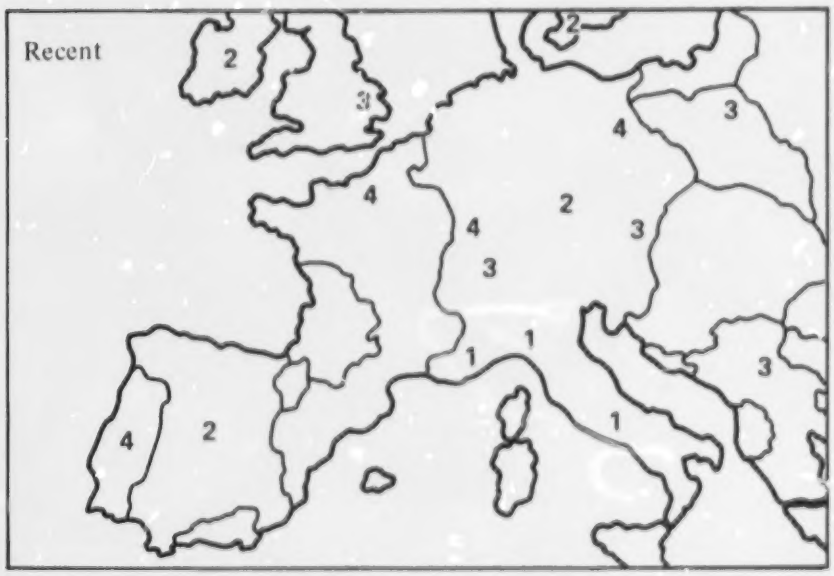
Look at the maps below. In the 1970's medical authorities in southern Europe reported the spread of a new type of flu. A week later doctors in many different cities of central Europe had already reported several hundred cases of the disease. In the Middle Ages it would have taken at least a year for a disease to spread across such great distances. Explain why diseases seem to spread so much more rapidly and irregularly now than in the Middle Ages.

ES
01-Core-1B

Epidemics in Europe



(Dated lines represent time of outbreak)



KEY

SYMBOL	OUTBREAK REPORTED
1	1st week
2	2nd week
3	3rd week
4	4th week

ES 01-Core-2B

Get a copy of the map labeled ES-01-Core-2 from your teacher. Suppose that outbreaks of smallpox were recorded as shown below.

MONTH AND YEAR	NEW CITIES AFFECTED
January, 1840	Belfast, Liverpool, London, Paris, Barcelona, and Almeria
July, 1840	Bergen, Cologne, Zurich, Genoa, and Messina
January, 1841	Riga, Warsaw, Dresden, Prague, Vienna, Belgrade, and Athens

Show the spread of the epidemic by drawing a line of best fit for each one of the dates given in the table above.

ES 01-Core-3B

1. Is a disease that spreads from one person to another likely to spread more rapidly in a large city or in a rural area?
2. Explain your answer.

ES 01-Core-4B

A Black Death epidemic occurred during the 14th century.

1. Could an epidemic of that kind occur today?
2. Explain your answer.

ES 01-Core-5B

List two or more conditions that would favor the spread of an epidemic across an entire city.

ES 01-Core-6B

A doctor has been hired to help the government of a heavily populated country. His job is to advise the government as to the fastest and most effective way to reduce the number of epidemics of serious diseases that sweep the country from time to time. The government can afford only one of the programs listed below.

a. Building new hospitals so that more sick people can be treated
b. Building many low-cost government housing projects to eliminate overcrowded and unsanitary living conditions
c. Building new medical schools to train more doctors
d. Developing an improved transportation system so that doctors can travel more quickly

1. Which one of the programs above do you think the doctor should recommend?
2. Explain your answer.

ES 01-Core-7B

Define what is meant by the term *component* in a discussion of systems.

ES 01-Core-8B

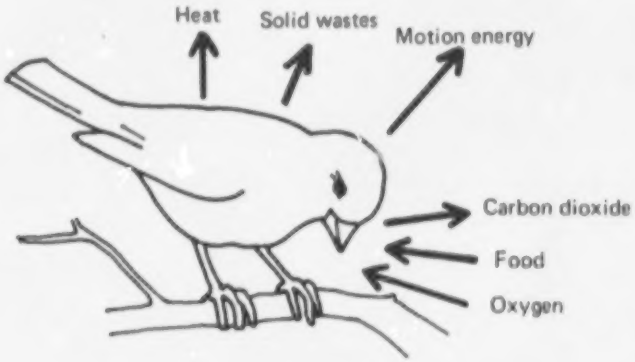
Consider an automobile as a system. List three components of this system.

A pond, the organisms in it, and its surroundings are often described as a system. State briefly what a system is as used in the sentence above.

ES
01-Core-9B

The diagram below shows a bird-air system. List any three labels which identify components of this system.

ES
01-Core-10B



Bird-Air System

There are millions of birds in the world. Yet, it is rare to see the solid waste output of birds building up on the ground to any extent. This waste output just seems to disappear. If you think of a bird and its surroundings as a system, what possible explanation is there for seldom seeing large amounts of bird wastes?

ES
01-Core-11B

An oil lamp flame can be thought of as one component of a system. The list below includes some things which are input and output of this component.

ES
01-Core-12B

a. Air
b. Heat
c. Time
d. Oil
e. Shadow
f. Light

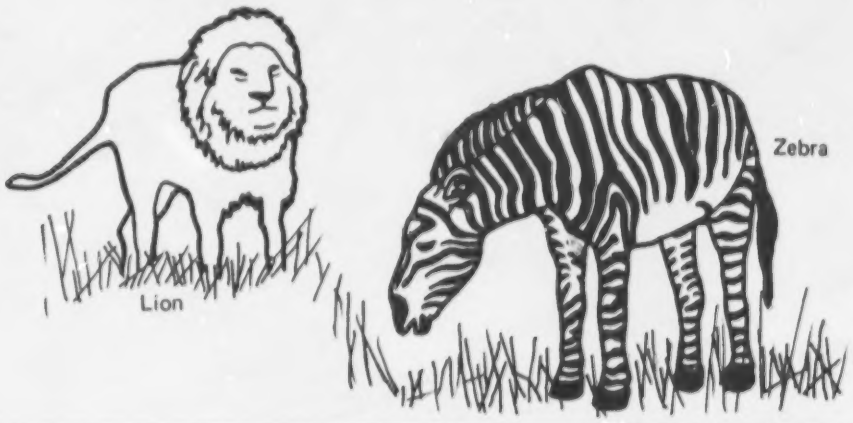
1. Write the letters of two things which are input to the flame of an oil lamp.
2. Write the letters of two things which are output from the flame of an oil lamp.

What does the term *producer* mean as it is used in the following sentence? Willow trees are producers.

ES
01-Core-13B

ES
01-Core-14B

What does the term *consumer* mean as used in the following sentence? Organisms such as lions and zebras are consumers.



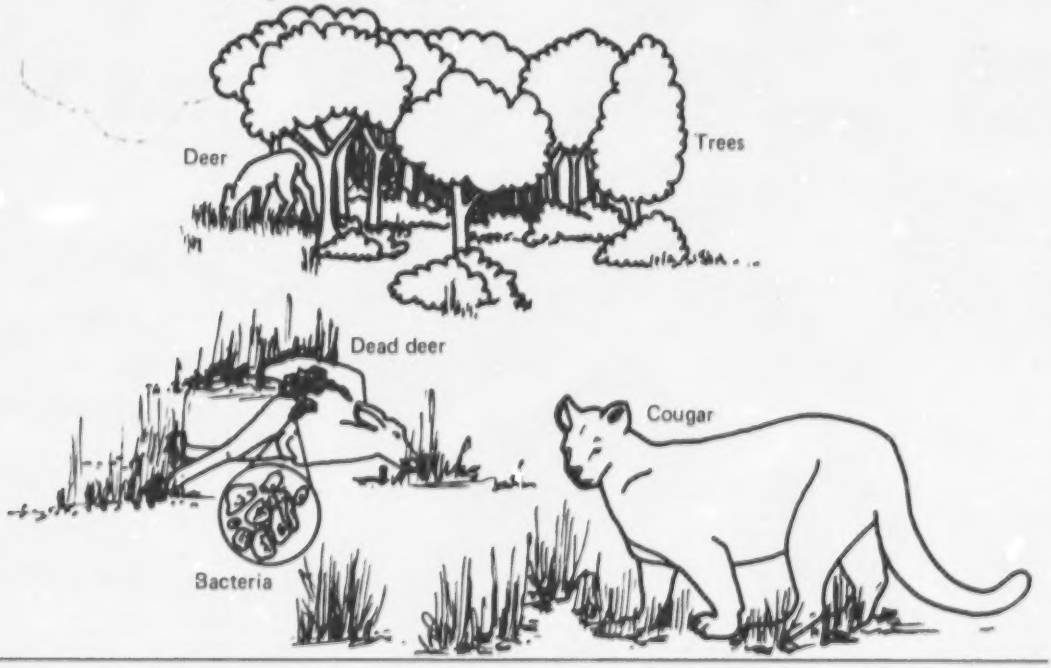
ES
01-Core-15B

Certain living things are called *decomposers*. Define the word *decomposer*.

ES
01-Core-16B

Consider the environmental system pictured below. Identify each component in the following list as a producer, a consumer, or a decomposer.

1. Small trees growing in a woods
2. Deer, which live in the woods
3. Bacteria, which feed on dead deer
4. Cougars, which eat deer



Sometimes a person will throw a gum wrapper onto the street. A little sheet of paper or foil does not affect the environment very much. However, most cities have passed laws against littering. Why do governments pass laws that make a little thing like this illegal?

ES
01-Core-17B

Ms. Jackson is the public relations representative for a new refinery. She explains how the solid, liquid, and gaseous chemical wastes will be treated so that they will be made harmless to the environment. In fact, Ms. Jackson made a statement to the press saying that the refinery is so well designed that it will not influence its surroundings at all.

1. Can Ms. Jackson's statement to the press be true?
2. Explain your answer.

ES
01-Core-18B

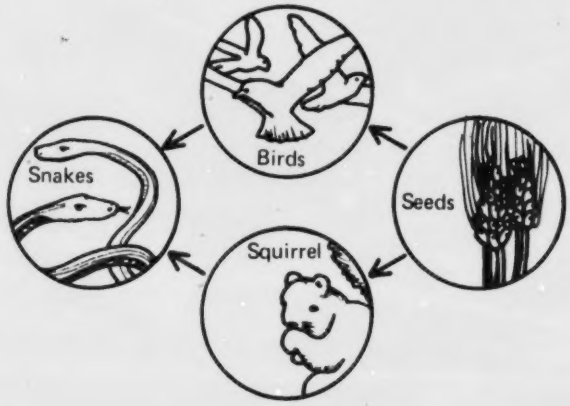
In the four cases below, decide whether the influence on the underlined living organism is direct or indirect. After the number of each case, write either *direct* or *indirect*.

1. Pine trees die because they are cut down for lumber.
2. Crops die because an irrigation ditch is dammed by beavers.
3. Grass grows in front of Mr. Scott's house because he planted it there.
4. All the grass in a valley was destroyed when a large herd of goats ate too much of it.

ES
01-Core-19B

The diagram below shows the food flow through a balanced system in a woods. Predict what might happen if squirrels were eliminated from the woods by large numbers of squirrel hunters.

ES
01-Core-20B



A certain 700-acre state park has several streams flowing through it. The State Road Department has recently ordered the construction of a large highway through the park. Part of the forest and the stream area will have to be destroyed. Give at least two ways in which the environment probably will be affected by pollution if the highway is built.

ES
01-Core-21B

ES
01-Core-22B

A Congressman wrote an article stating that the average person in the United States has the same effect on the environment as 30 persons living in one of the nonindustrial nations of the world. Explain how this could be true.

ES
01-Core-23B

Select the best answer. Which of the following will affect the environment?

a. A sleeping man
b. A boy on a bicycle delivering papers
c. A housewife doing dishes
d. A girl putting a stack of dishes in the cupboard
e. All of the above

ES
01-Core-24B

Describe the input and output of gases in the system formed by living things and the atmosphere that surrounds them in the following situation. Lush, tropical trees grow on the South Sea Island on which some shipwrecked sailors made their home.

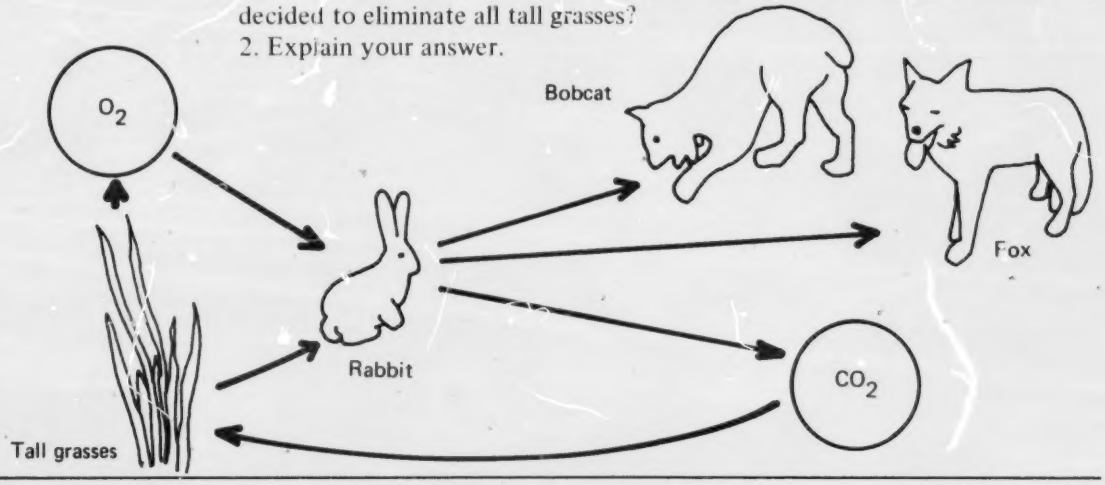
ES
01-Core-25B

List two things which are input to and three things which are output from the human body.

ES
01-Core-26B

The system pictured below is in balance.

1. What would happen to the fox if the State Parks Department suddenly decided to eliminate all tall grasses?
2. Explain your answer.



Your teacher will observe you for this check when he can. **ES 01-Core-27B**

Your teacher will observe you for this check when he can. **ES 01-Core-28B**

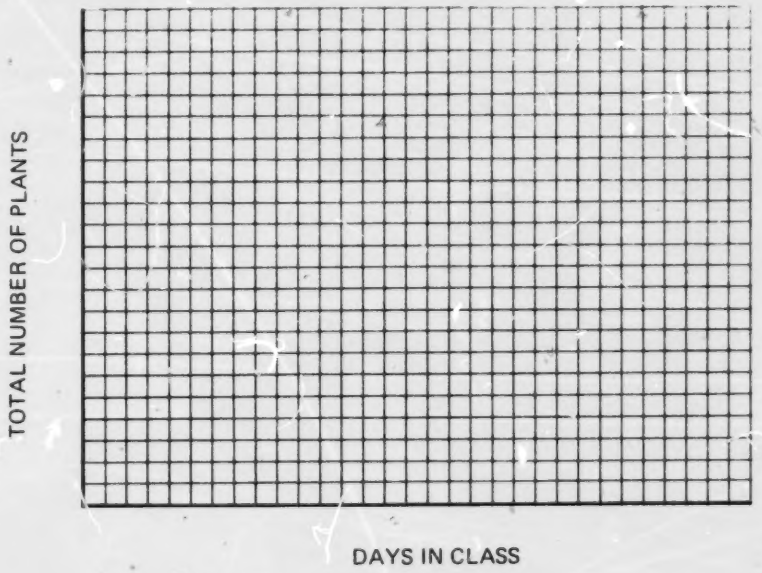
Your teacher will observe you for this check when he can. **ES 01-Core-29B**

Your teacher will observe you for this check when he can. **ES 01-Core-30B**

Your teacher will observe you for this check when he can. **ES 01-Core-31B**

The table below lists the total number of plants that were gathered by biology students during the first thirty days of classes. Get a partially labeled grid or an unlabeled grid from your teacher. If the grid is unlabeled, draw and label the axes as shown on the grid below. Put a suitable scale on each axis. Then plot the data, and draw the line of best fit. **ES 01-Exc 1-1-1B**

DAYS OF CLASS	TOTAL NUMBER OF PLANTS
0	0
5	4
10	8
15	22
20	26
25	27
30	29

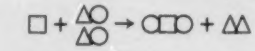


$2KI + CuSO_4 \rightarrow PbSO_4 + ZnI_2$
(potassium iodide) (copper sulfate) (lead sulfate) (zinc iodide)

ES 01-Exc 2-1-1B

1. Is it possible for the reaction above to take place?
2. Explain your answer.

ES
01-Exc 2-1-2B



Assume that the symbols □, △, and ○ represent different kinds of atoms. After the number of each term below, draw on your answer sheet the symbol or symbols taken from the equation above which illustrate that term.

1. Element
2. Compound
3. Reactant
4. Product

ES
01-Exc 2-1-3B

Ethel is producing some hydrogen gas. The chemical reaction that she is using to produce the gas is

Zn	+	$2HCl$	→	$ZnCl_2$	+	H_2
(zinc)		(hydrochloric acid)		(zinc chloride)		(hydrogen)

Which of the following actions would not increase the rate at which hydrogen is produced?

a. Decreasing the concentration of HCl
b. Heating the substances that are reacting
c. Increasing the concentration of Zn
d. Adding a catalyst

ES
01-Exc 2-1-4B

Wood reacts with the oxygen in the air in a process that is usually called *burning*. However, before the burning starts, the wood must be heated. Explain why this heat energy is needed to start the burning process.

ES
01-Exc 2-1-5B

Match the letter of each definition below with the number of the term from the ISCS particle model to which it applies.

Terms	Definitions
1. Element	a. A particle with either excess positive charge or excess negative charge
2. Compound	b. A new substance produced in a chemical reaction
3. Product	c. A substance containing two or more different kinds of atoms
4. Reactant	d. A substance containing only one kind of atom
5. Ion	e. A particle that contains equal numbers of positive and negative charges
6. Molecule	f. A starting substance in a chemical reaction

Pete measured the temperature of two liquids, X and Y. He then mixed the two liquids and measured the temperature again.

ES
01-Exc 2-1-6B

LIQUID	TEMPERATURE (in °C)
X	20
Y	20
X + Y	20

Select the statement below that best describes the relationship between the energy needed to separate the reactant particles and the energy released when those particles recombine to form products in the chemical reaction.

a. The heat needed to separate the reactant particles is greater than the heat released when those particles recombine to form products.
b. The heat needed to separate the reactant particles is less than the heat released when those particles recombine to form products.
c. The heat needed to separate the reactant particles is equal to the heat released when those particles recombine to form products.
d. From the information given, you cannot tell which energy is greater.

Men in a ranchers' association have spoken with a legislator about the problem of rabbits eating so much grass on their ranches that the cattle are underfed. They want a bounty on rabbits to encourage people to shoot them. Their argument is that the rabbits don't do anyone any good and that killing them would provide more grass for cattle grazing. What information should the legislator try to get to help him make a decision?

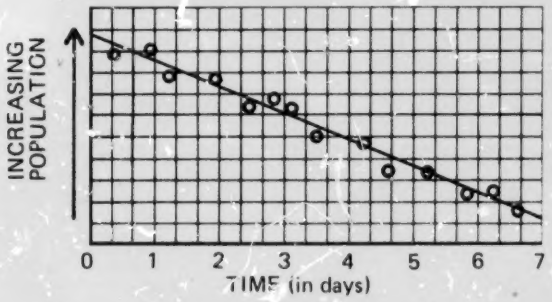
ES
01-Exc 2-2-1B

Define the term *biochemical oxygen demand.*

ES
02-Core-1B

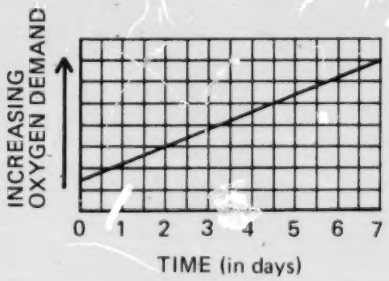
Robert measured the number of microorganisms in samples taken from a pond twice a day for a week. A graph of his data is shown below.

ES
02-Core-2B

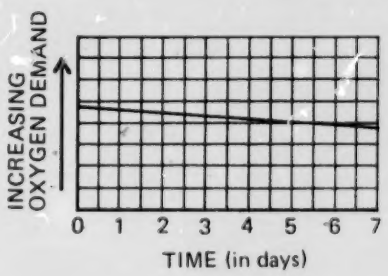


Which of the graphs below best shows the oxygen demand of this population of microorganisms?

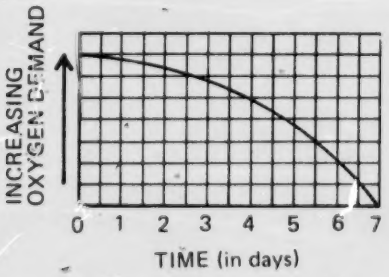
Graph a.



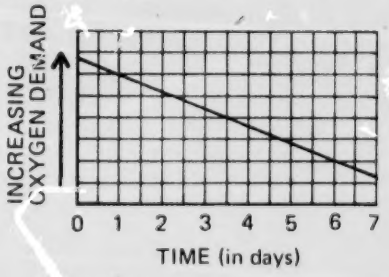
Graph b.



Graph c.



Graph d.



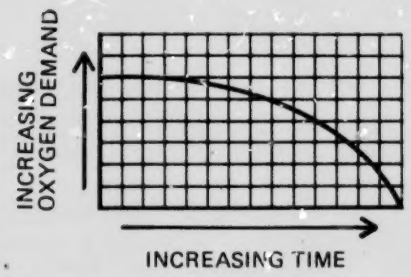
ES
02-Core-3B

Larry and Frank measured the amount of time it took for the blue color to disappear from test tubes containing yeast and milk. Larry claimed that the color change was caused by the action of the milk. Frank said that it was the action of the yeast and the milk together that caused the change. Describe an activity you could do to determine who is correct.

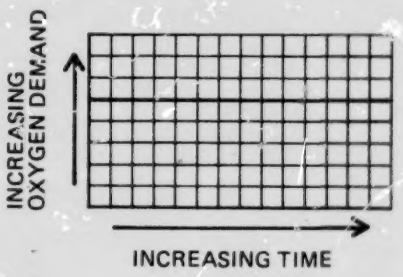
ES
02-Core-4B

Select the graph that best shows how the oxygen demand of a population of microorganisms changes with an unlimited food supply.

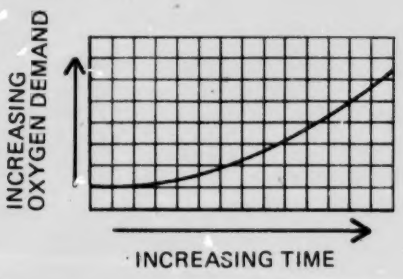
Graph a.



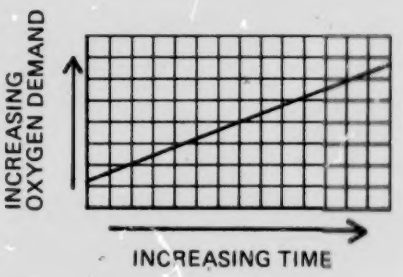
Graph b.



Graph c.



Graph d.



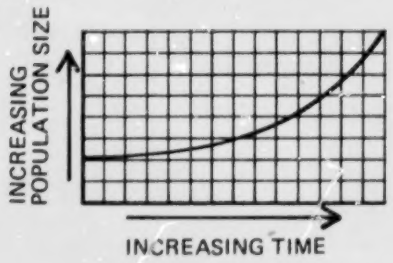
Gordon put 5 yeast organisms into a large test tube full of warm milk. Under those conditions, it takes 15 minutes for each yeast organism to divide in two and become two yeast organisms. Predict the number of yeast organisms that will be in his test tube after 1½ hours.

ES
02-Core-5B

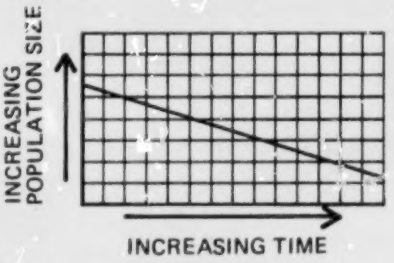
Ed has put a few microorganisms into a bowl of egg white. There is enough egg white and oxygen available to support a very large population of the microorganisms. Select the graph below that best shows how the size of the microorganism population will change over the next few hours.

ES
02-Core-6B

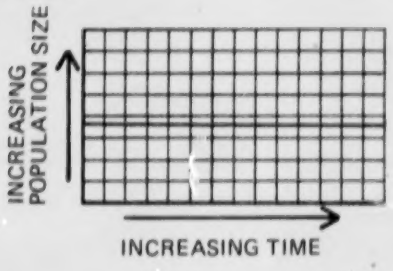
Graph a.



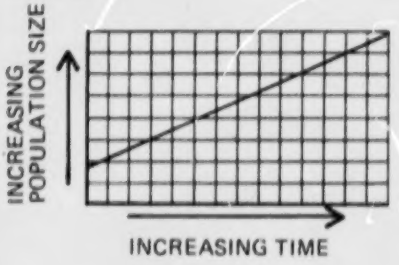
Graph b.



Graph c.



Graph d.



ES
02-Core-7B

Sparkle Lake is surrounded by an apartment complex from which sewage is allowed to flow directly into the lake. One spring, an apartment resident noticed that certain kinds of fish no longer lived in Sparkle Lake. The most probable reason is that

a. the fish ate the sewage and died.
b. the water contains too little oxygen.
c. the fumes from the sewage poisoned the fish.
d. the fish became diseased from the sewage.

ES
02-Core-8B

Explain a cause of the oxygen death of a lake or stream.

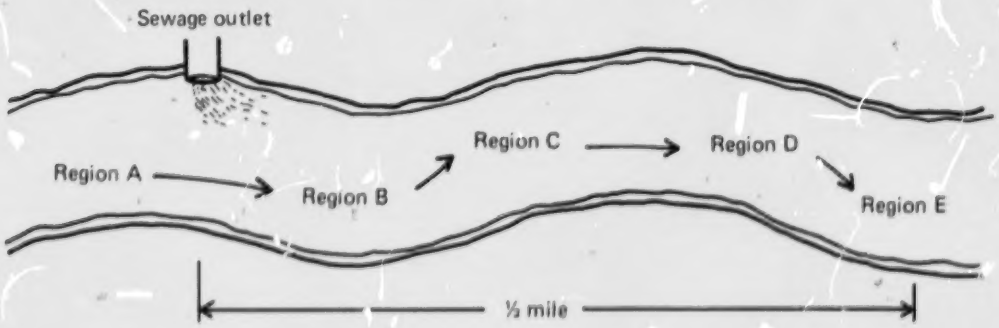
ES
02-Core-9B

Sewage from local cottages has seeped into Dreary Pond. It is now filled with decomposers. An organization in the nearby town says that decomposers have caused the pond to die. The group wants to spray the pond to get rid of all the decomposers.

1. Is this a good solution to the problem?
2. If so, explain why it is good. If not, suggest a better solution and explain why it is better.

ES
02-Core-10B

Debbie surveyed the number of fish living in different parts of a slow-moving stream on the outskirts of town. She drew the diagram and table shown below.



REGION OF STREAM	NUMBER OF FISH
A	many fish
B	many fish
C	some fish
D	few fish
E	no fish

Use what you have learned about the needs of fish and the decomposition of sewage to explain Debbie's observations.

It has been reported to the city councils of several cities which draw water from a nearby river that the methods they now use to purify their drinking water are no longer good enough. Therefore, these cities are building new water purification plants that use more effective methods to get the water "clean" enough for human use. Explain why the older, simpler methods of water purification no longer work.

ES
02-Core-11B

To brighten up the laundry room in her home, Mrs. Terabian decided to raise flowers around the room. She bought seeds and planted them in pots. After several weeks, she noticed that those pots near the laundry tub where drainage water often splashed had put up fewer seedlings than the other pots. Those seedlings looked less healthy than the other plants. What is probably the cause of these differences?

ES
02-Core-12B

Mr. Wilson's class decided to investigate the effect of detergent on the germination rate of some seeds. His class used pea, bean, cucumber, and corn seeds. Based on your work with radishes, select the best prediction below that you can make about the results of their activities.

a. I can't predict how the activities will turn out because detergent affects only root crops, such as radishes, beets, turnips, and carrots.
b. All of the seeds will have a lower rate of germination, just like my radish seeds.
c. I think that the detergent will cause a lower germination rate, but I am not sure because I tested only radish seeds.
d. I have no basis for predicting how the detergent will affect other seeds.
e. None of these seeds will show a lower germination rate because the detergent affects only radish seeds.

ES
02-Core-13B

Growers often spray their crops with insecticides to try to destroy the harmful insects. Experiments with some of these insecticides show that they remain in the soil for several years. Describe an activity that you could do to determine whether the insecticide DC-408 will affect the germination of lettuce seeds.

ES
02-Core-14B

Animal manure is biodegradable. What does *biodegradable* mean?

ES
02-Core-15B

The Ace Chemical Company is located near a lake. It has begun to dump biodegradable chemicals into the lake as part of its waste disposal system. Oxygen measurements have been made in the lake for the past year and a rapid decrease has been noticed in the amount of dissolved oxygen. Explain how the biodegradable chemicals can cause the rapid decrease of dissolved oxygen in the lake.

ES
02-Core-16B

ES
02-Core-17B

The fact that a product is biodegradable is not a guarantee that it will not pollute a stream. Which of the following best states how a biodegradable substance can cause pollution?

a. It may be a food source for organisms in streams which will, in turn, become overpopulated.
b. It will not be a food source for organisms, thereby decreasing the organisms' population.
c. It can decompose waste products of the plants and animals in the water.
d. It will accumulate in the water.

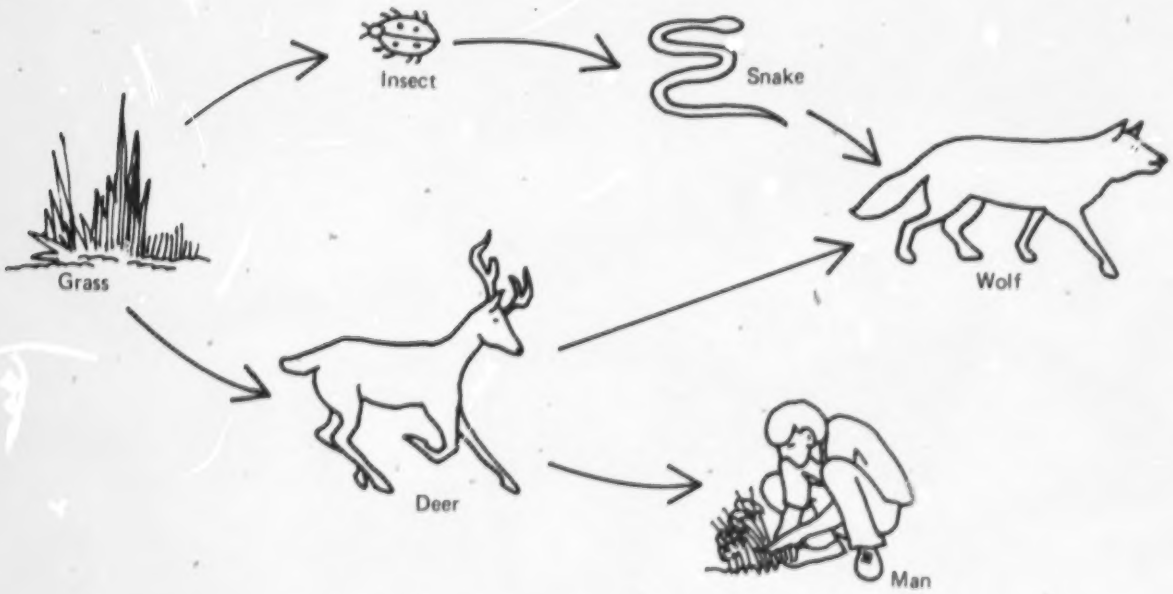
ES
02-Core-18B

Consider the following situation.

Ron McElroy, a citrus grower, sprays nonbiodegradable pesticides on his orange trees. Since he only sprays when there is no breeze, he says that the wildlife in and around a pond down the hill is not affected by his spraying.

1. Is Ron correct?
2. Defend your answer.

ES
02-Core-19B



1. State the term used for the system shown above.
2. Explain what the arrow between the grass and the deer in the diagram means.

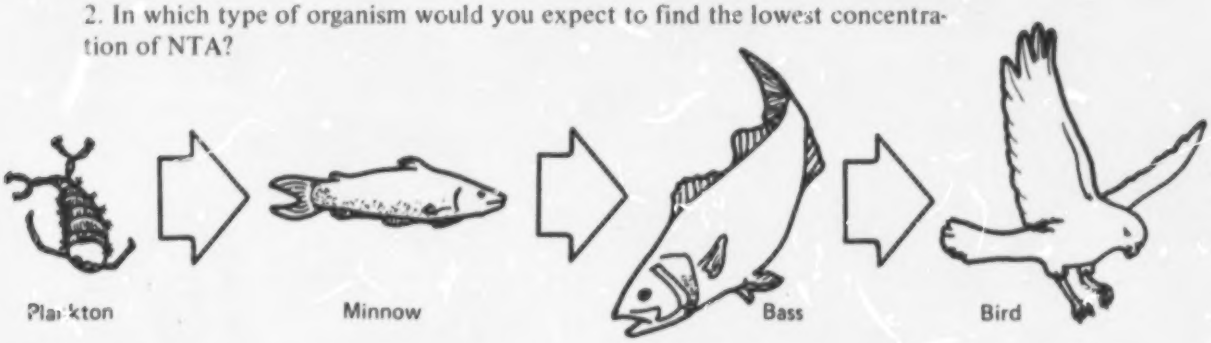
ES
02-Core-20B

A certain factory puts large quantities of a nonbiodegradable waste into a river. A chemist tested the water several miles downstream from the factory and found that the river water contained less of this chemical. State two reasons which account for the disappearance of some of this chemical from the water.

The diagram below shows four organisms in part of a food chain in a saltwater lake and its surroundings. The lake has been polluted with NTA, a nonbiodegradable chemical that accumulates in the body of living organisms.

ES
02-Core-21B

1. In which type of organism would you expect to find the highest concentration of NTA?
2. In which type of organism would you expect to find the lowest concentration of NTA?



Some widely used detergents can be decomposed by living organisms and are a huge source of food for them. The population of these organisms increases so greatly that their waste products become serious pollutants. Other detergents which are not easily decomposed can accumulate and kill organisms. What would be the characteristics of the ideal detergent?

ES
02-Core-22B

Take your *Record Book* to your teacher. Your task is either to defend your written response to Problem Break 4-4 or 4-5 or to make a satisfactory change in any part of it that your teacher questions.

ES
02-Core-23B

Hydrogen peroxide, which can be purchased at a drugstore, is often put on cuts to kill germs. It undergoes a reaction in storage which gradually destroys it. The bottle always says that it should be stored in a cool place to preserve the hydrogen peroxide in the solution. Explain why storing the bottle in a warm cupboard would weaken the solution more than storing it in a cool place.

ES
02-Core-24B

Stacy measured the body temperatures of three different animals. She then changed the temperature of their surroundings, waited two hours, and measured their body temperatures again. Her data are shown below.

ES
02-Core-25B

TEMPERATURE OF SURROUNDINGS (in °C)	BODY TEMPERATURE (in °C)		
	Animal 1	Animal 2	Animal 3
25	26	26	30
10	11	26	30

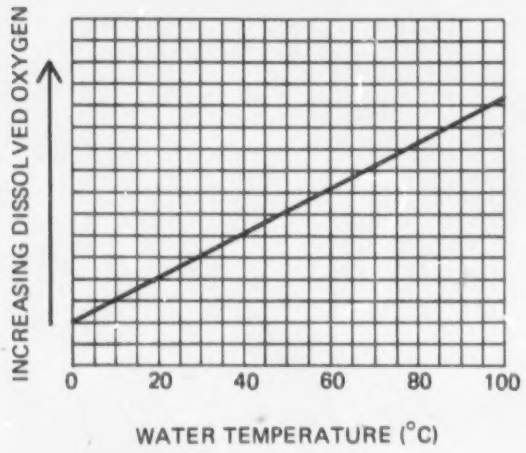
Indicate whether each animal is warm-blooded or cold-blooded.

ES **02-Core-26B**	In the body of a lizard, chemical reactions occur which release energy to the lizard. Lizards are cold-blooded animals. They move very slowly in cold weather, but in hot weather they are very quick. Use what you have learned to explain why this is so.
ES **02-Core-27B**	Define the term *thermal death point*.
ES **02-Core-28B**	One hot summer day, Glenn decided to take some of his aquarium fish and give them to his friend Roy. He put the fish and some of the aquarium water into a plastic bag. He knew there was enough oxygen in the bag to keep the fish alive for five to six hours. On the way to Roy's house, he stopped at a shopping center. When he returned to his car and unlocked it about an hour later, he found that all the fish had died. Explain what might have caused the fish to die.
ES **02-Core-29B**	Heather stocked her aquarium with gizzard shad and green fish. Both fish have nearly the same preferred temperature range. One morning she woke up to find that all the green fish had died. The thermostat on the aquarium heater had stuck, and by morning the water was quite warm. Explain why one kind of fish died, but the other did not.
ES **02-Core-30B**	There have been many insects killed by pesticides in Mr. Mauney's orchard. Usually, however, only certain kinds of insects are killed. Explain why only certain kinds of insects die rather than all the insects in the area.
ES **02-Core-31B**	Albert went fishing during May. He caught a lot of northern pike by fishing the weed beds in shallow water near the shore. In July he tried the same spots and had no luck there, but he found that pike were being caught in areas where the lake was deeper. Select the most likely reason below for this. a. The warmer surface waters were more dense, so the fish swam deeper to find an area where the pressure was less. b. The surface water had warmed up, so the fish swam deeper until they found water in their preferred temperature range. c. The pike had been in the weed beds in May because they were looking for food. d. The pike were in the shallow water in May because they need more oxygen at the beginning of summer than in midsummer.
ES **02-Core-32B**	Trout are a type of fish that survive best in water which contains large amounts of dissolved oxygen. 1. Are trout more likely to live in cold water or warm water? 2. Explain the reason for your answer.

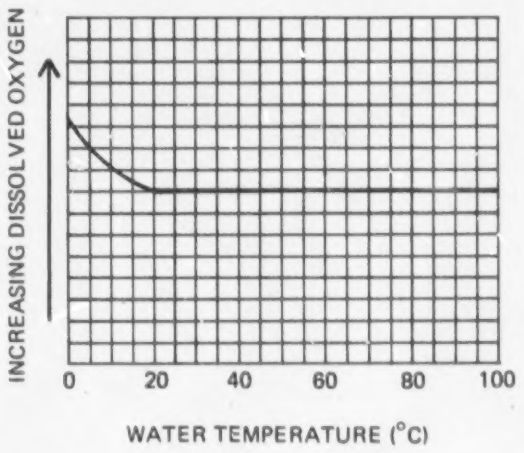
Select the graph below that best shows how the temperature of water affects the amount of oxygen gas that will dissolve in water.

ES
02-Core-33B

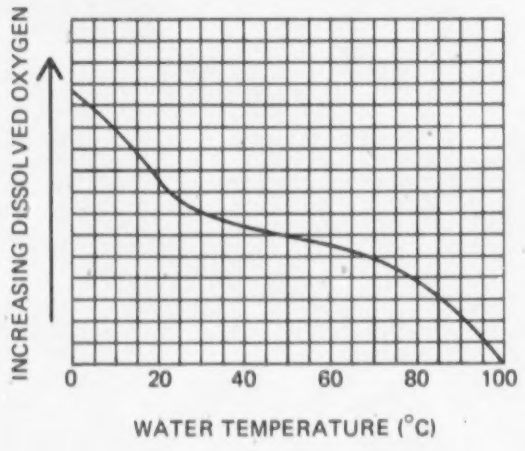
Graph a.



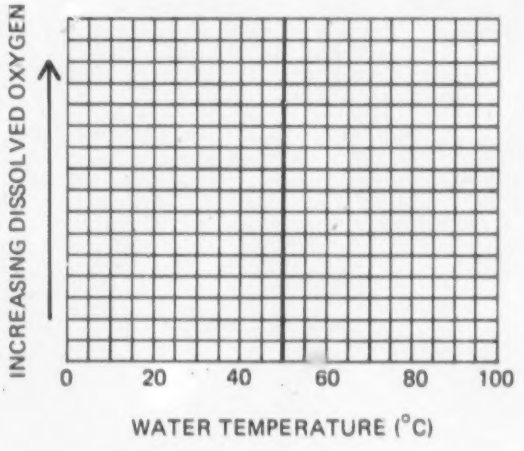
Graph b.



Graph c.



Graph d.



An aquarium store keeps two large fish tanks stocked with fish. The only difference between the tanks is that one is 10° cooler than the other. Both tanks have air bubbled into them.

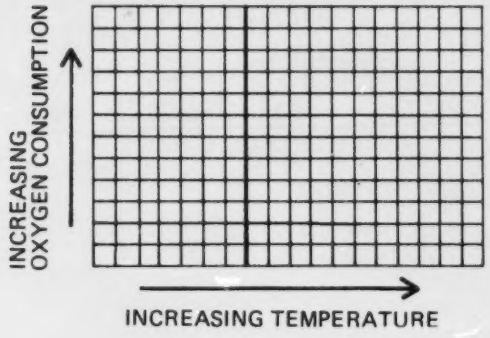
ES
02-Core-34B

1. If an accident were to cut off the supply of air to both of the tanks, would the fish survive longer in the warm or the cool tank?
2. State two reasons for your prediction.

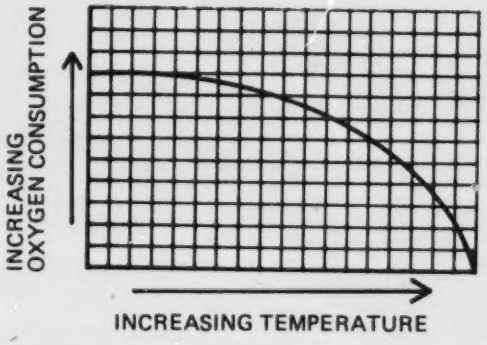
ES
02-Core-35B

Grace wants to determine how fast brine shrimp, which are cold-blooded, use oxygen. She measures the rate of oxygen consumption at different temperatures. Select the graph below that best shows how you would expect the rate of oxygen consumption to depend on temperature.

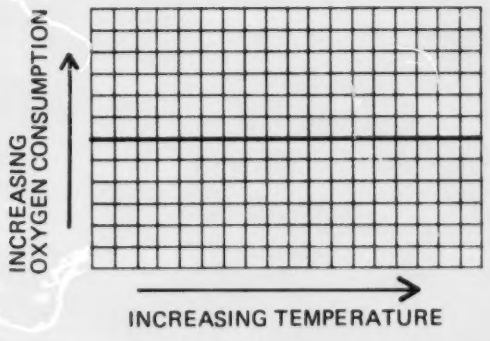
Graph a.



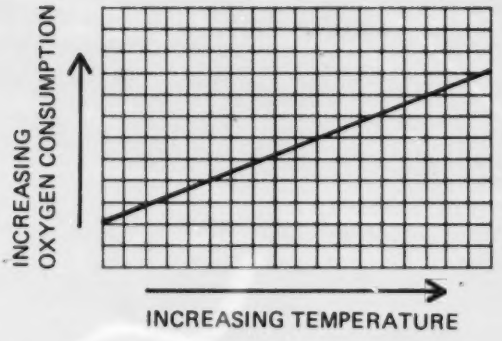
Graph b.



Graph c.



Graph d.



ES
02-Core-36B

Define the term *thermal pollution.*

Which of the following is not a result of thermal pollution?

ES
02-Core-37B

a. Some fish may be driven away because the water temperature is no longer within their preferred temperature range.
b. The amount of oxygen that can be dissolved in the water decreases.
c. The rate at which sewage is decomposed by microbes living in the water is increased.
d. Some fish may be killed because the water temperature is above their thermal death point.
e. The biochemical oxygen demand of living organisms decreases.

During July, a power company in a large city received permission to release water 4°C higher than usual to take care of the increased use of air conditioners. Supporters of this measure said that it was perfectly all right because the thermal pollution would be permitted for only the fairly short period of four weeks and no longer.

ES
02-Core-38B

1. Is this sensible reasoning?
2. Explain your answer.

Parts of Montana have the same amount of precipitation as parts of Utah. However, the vegetation is not the same in these two areas. These parts of Utah have areas of grass. But areas of similar precipitation in Montana are forests. List three factors which could explain these differences in vegetation in areas which have the same amount of precipitation.

ES
02-Exc 3-1-1B

During the past few years, several disputes have arisen between Mexico and the U.S. about water rights in rivers that flow from one country to the other. One dispute concerned water available for irrigation on both sides of the border.

ES
02-Exc 3-1-2B

1. Why weren't there as many arguments about the water flow thirty years ago?
2. Explain why some people think that these disputes about the water flow will continue and become even more serious in the future.

The rate at which trees lose water to the atmosphere is about twenty times greater than grass. Both trees and grass are used to prevent soil erosion. A hilly area around a new school is to be planted, but the amount of water in the ground is slightly low.

ES
02-Exc 3-1-3B

1. As a concerned citizen of this new community, would you recommend planting trees only, grass only, or both trees and grass?
2. Explain your answer.

Start with component number 2 below. Arrange the other components by number into the system known as a water cycle to show the order in which they occur.

ES
02-Exc 3-1-4B

1. Precipitation
2. Water flowing in a stream
3. Evaporation
4. Water runoff from a hillside

ES **02-Exc 4-1-1B**	Grace is preparing to carry out an experiment on the growth of corn. She needs to define *plant growth* operationally. Give two operational definitions for *plant growth*. In other words, state two ways to detect and to measure the growth of Grace's plants.
ES **02-Exc 4-1-2B**	Some persons have proposed that plants grow better when they receive affection from the grower. Describe an experiment that you could do to investigate whether love affects the rate of germination and the growth of the seeds which germinate. Be sure to state which variables should be held constant and which should vary.

Robert Boyd says that he doesn't contribute to the air pollution problem. He has given up smoking, has sold his car, and now walks to work.

ES
03-Core-1B

1. Is Robert correct in assuming that he doesn't contribute to the air pollution problem?
2. Explain your answer.

A manufacturing plant in Grubsville has always been considered a major source of air pollution because of the black soot coming from its smokestack. Recently a filtering system was installed that collects the solid particles as they travel up the smokestack. Now the sky above the stack is always clear.

ES
03-Core-2B

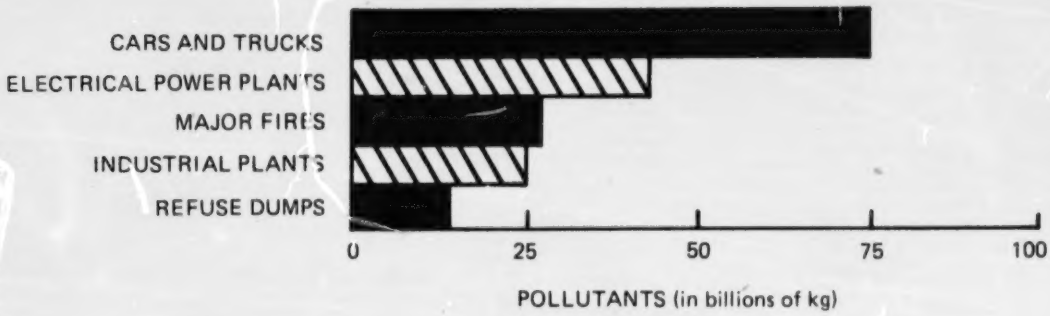
1. Does this factory no longer contribute to air pollution?
2. Explain your answer.

In Chapter 6, you used a piece of sticky tape to study solid-particle air pollution. Write an operational definition for *solid-particle air pollution,* using the sticky-tape method.

ES
03-Core-3B

Consider the size of cars and trucks, electrical power plants, major fires, industrial plants, and refuse dumps. How do you explain the fact that cars and trucks, which individually are so small, produce the greatest amount of pollution as shown below?

ES
03-Core-4B



The substances listed below are products of combustion. Which one is not considered to be a major pollutant?

ES
03-Core-5B

a. Carbon monoxide
b. Soot
c. Carbon dioxide
d. Sulfur oxide
e. Unburned hydrocarbons

ES
03-Core-6B

Select the answer that best indicates the possible effects of air pollution.

a. Increases some human diseases
b. Increases the rate of deterioration of steel
c. Damages crops
d. Damages clothes
e. All of these

ES
03-Core-7B

Chris: Forcing an industry to remove the pollutants from its output means it has to buy expensive equipment.

Paula: Yes, but not removing the pollutants is also expensive.

Chris: What? How can not spending money to remove pollutants cost money?

On your answer sheet, write a good response for Paula. Include at least two examples of how releasing pollutants can be expensive.

ES
03-Core-8B

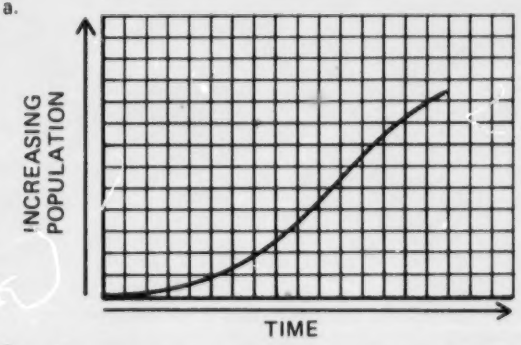
Mr. DeVoto is very concerned about the extent of the ever-increasing air pollution in the city where he lives. He decides to move to the country to escape all the air pollution.

1. Will he escape air pollution by moving to the country?
2. Explain your answer.

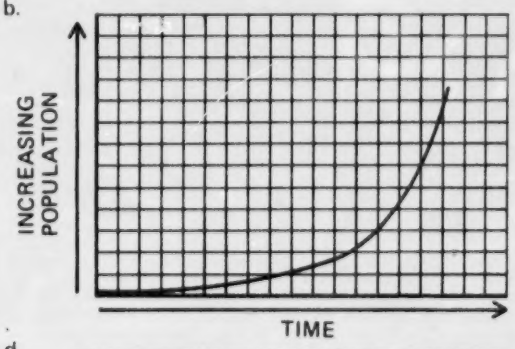
ES
03-Core-9B

Which of the following graphs shows the greatest population explosion?

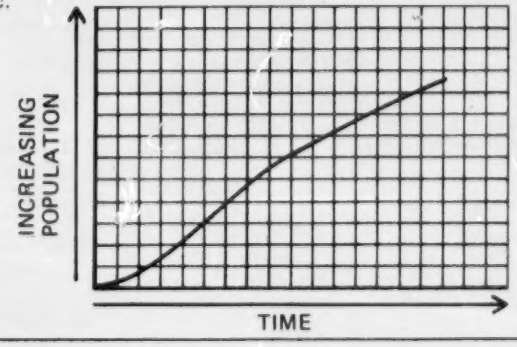
Graph a.



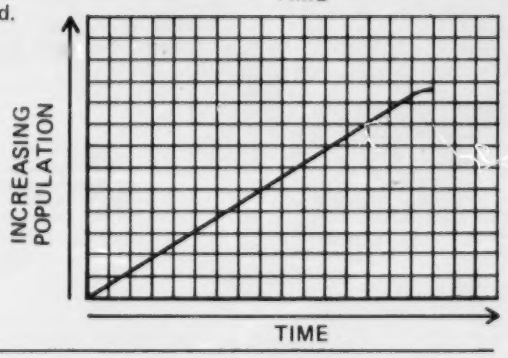
Graph b.



Graph c.



Graph d.



Vera raises mice in the garage. Over the years, the mouse population has grown considerably. Her mother has laid down the law! If her mice population gets any larger, she will make her get rid of all her mice.

ES
03-Core-10B

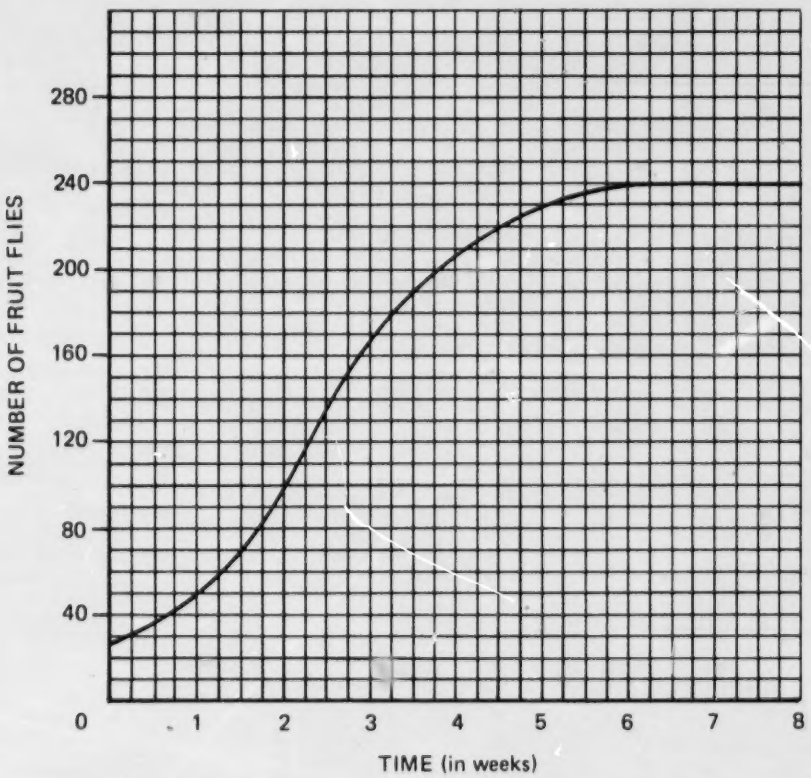
By answering the questions below, show how births must be related to deaths to keep the population constant. Assume that no mice are sold, are given away, or escape.

1. How many deaths must there be in 1975 to result in a constant population?
2. How many births can there be in 1976 to result in a constant population?

YEAR	1972	1973	1974	1975	1976
Population at end of year	45	93	151	151	151
Births	38	72	102	114	?
Deaths	1	28	49	?	44

Troy kept a culture of fruit flies for several months. He added the same amount of food each day. Every week he counted the number of live flies. Then he drew the graph shown below. At what point in time is the number of deaths in the population equal to the number of births?

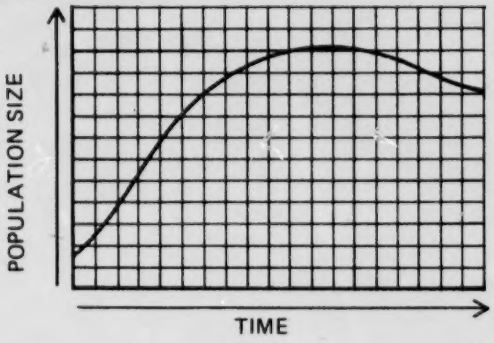
ES
03-Core-11B



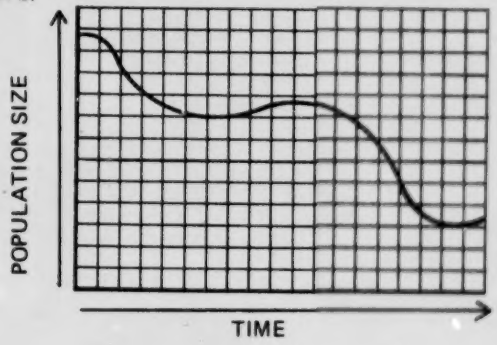
ES 03-Core-12B

Which graph below best indicates how populations of plants and animals change with time?

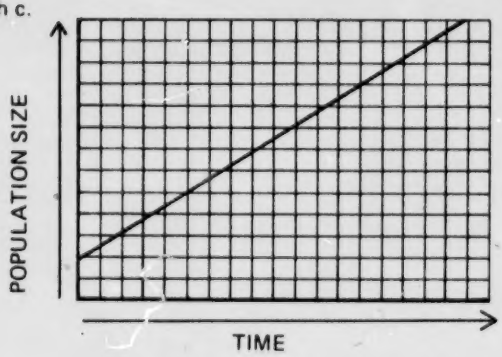
Graph a.



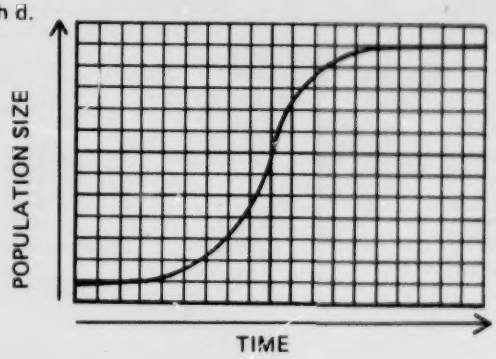
Graph b.



Graph c.



Graph d.



ES 03-Core-13B

State four variables that could limit the size of a nonhuman population.

ES 03-Core-14B

Until about 1650, the earth's human population increased very slowly. What variables, if any, has man learned to control or change that have allowed the human population to increase so rapidly since 1650?

ES 03-Core-15B

Take your *Record Book* to your teacher. Your task is either to defend your written response to Problem Break 8-1 or Problem Break 8-3 or to make a satisfactory change in any part of it that your teacher questions.

ES 03-Core-16B

Take your *Record Book* to your teacher. Your task is either to defend your written response to Problem Break 8-2 or to make a satisfactory change in any part of it that your teacher questions.

Consider the following information about the world's population.

ES
03-Core-17B

Present world human population = 3,724,000,000
Birthrate = 348,000 per day
Death rate = 167,000 per day

Assuming that the birthrate and the death rate stay constant, how many days will it take for the world's population to reach 3,726,000,000? Show your calculations.

ES
03-Core-18B

Birthrate (per day)	311,000 (high)
Death rate (per day)	138,200 (low)

The current world birthrate and death rate are shown above. This situation must change if the population is to stop increasing. Shown below are two possible conditions which would result in a constant population.

	CONDITION I	CONDITION II
Birthrate (per day)	311,000 (high)	138,200
Death rate (per day)	311,000	138,200 (low)

1. Which would be more desirable – Condition I, which has an increased death rate, or Condition II, which has a decreased birthrate?
2. Explain the reasons for your answer.

Describe how a temperature inversion is related to an increase in the air pollution at the earth's surface.

ES
03-Exc 6-1-1B

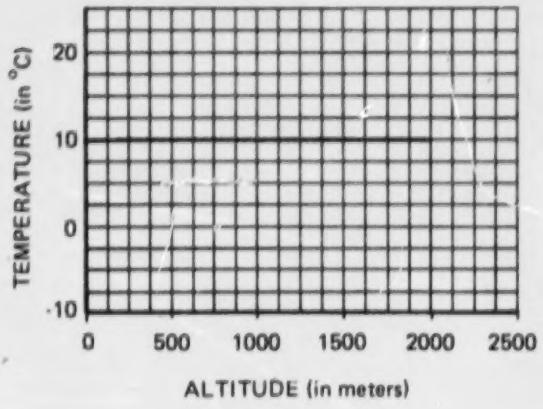
State a major cause of temperature inversions.

ES
03-Exc 6-1-2B

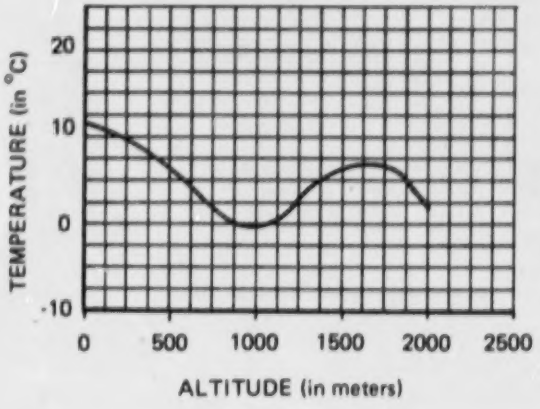
ES
03-Exc 6-1-3B

1. Which graph below shows the normal way temperature changes as altitude increases?
2. Which graph below shows the way the temperature changes with altitude during a temperature inversion?

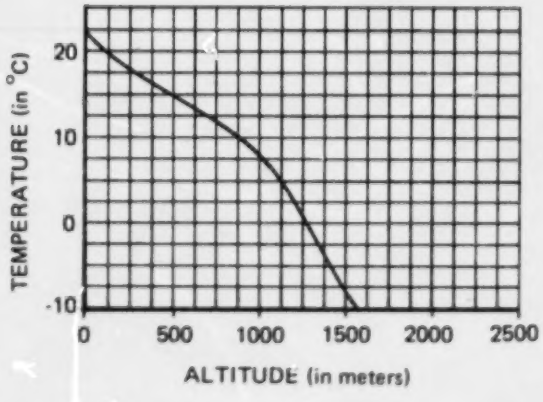
Graph a.



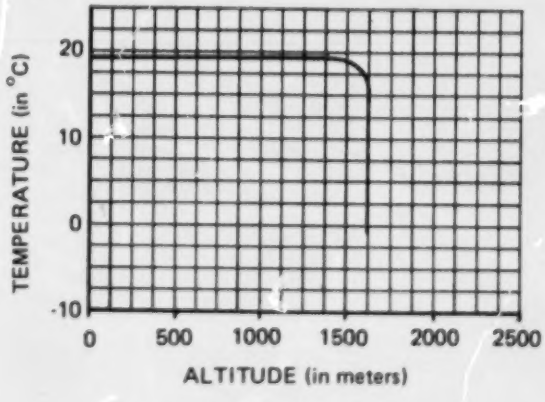
Graph b.



Graph c.



Graph d.



ES
03-Exc 7-1-1B

Which of the following variables directly influence the size of the population in any country?

a. The amount of available food
b. The number of libraries
c. The number of redheads
d. The immigration rate
e. The number of cars

Denise was doing a population study of fish (bass). She used three different sets of experimental conditions, as shown below.

ES
03-Exc 7-1-2A

EXPERIMENTAL CONDITION	FOOD SUPPLY	EMIGRATION
I	unlimited	not allowed
II	limited	not allowed
III	limited	allowed

Four possible experimental results for each of these experiments are shown below.

EXPERIMENTAL RESULT	BIRTHRATE vs DEATH RATE
a	lower birthrate and equally low death rate
b	lower birthrate and a higher death rate
c	higher birthrate than death rate
d	a high birthrate which is equalled by the death rate

1. Based on the results of Dr. Emlen's experiments with mice, which of the experimental results (a, b, c, or d) shown above would you predict Denise will get for experiment I?
2. For experiment II?
3. For experiment III?

Suppose that the following two planets have been discovered.

ES
03-Exc 7-2-1B

PLANET	TEMPERATURE RANGE (in °C)	ATMOSPHERIC COMPOSITION
Wayout	-75 to 55	hydrogen and nitrogen
Outasite	-90 to -15	oxygen and nitrogen

1. Would either of these planets be suitable for human habitation without support equipment?
2. Explain the reasons for your answer.

ES
03-Exc 7-3-1B

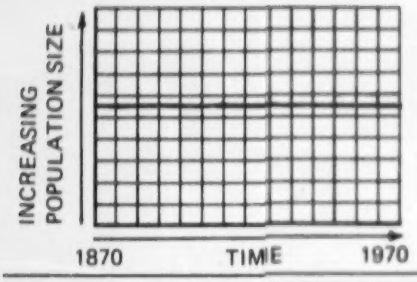
Each of the graphs below was drawn for the population of a different country. Match the appropriate graph to the approximate average family size in that country. Assume that no change in the life span of the individual occurred between 1870 and 1970.

Family Size

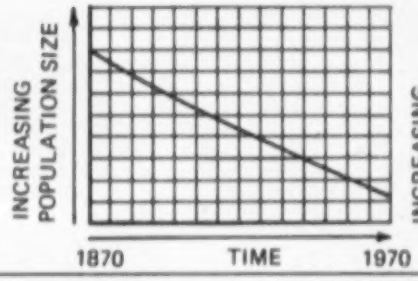
1. The average family had fewer than two children.
2. The average family had exactly two children.
3. The average family had more than two children.

Population Curve

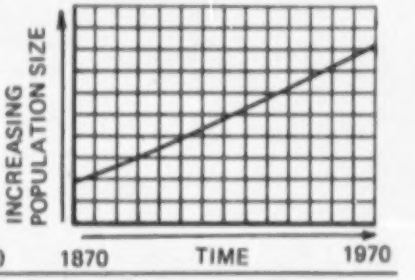
Graph a.



Graph b.

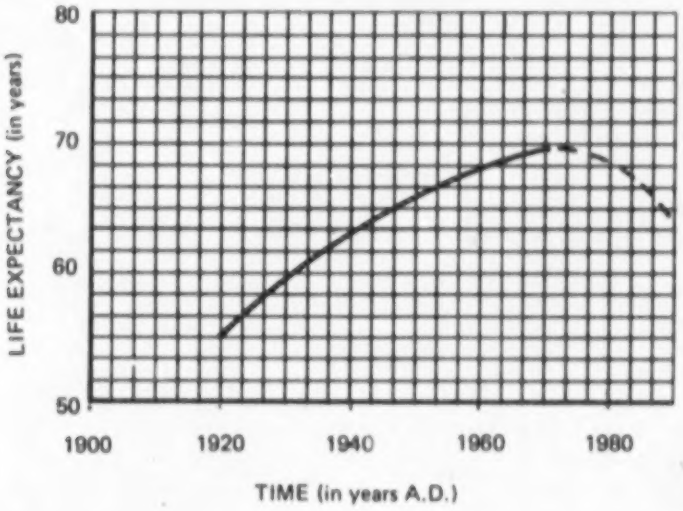


Graph c.



ES
03-Exc 7-3-2B

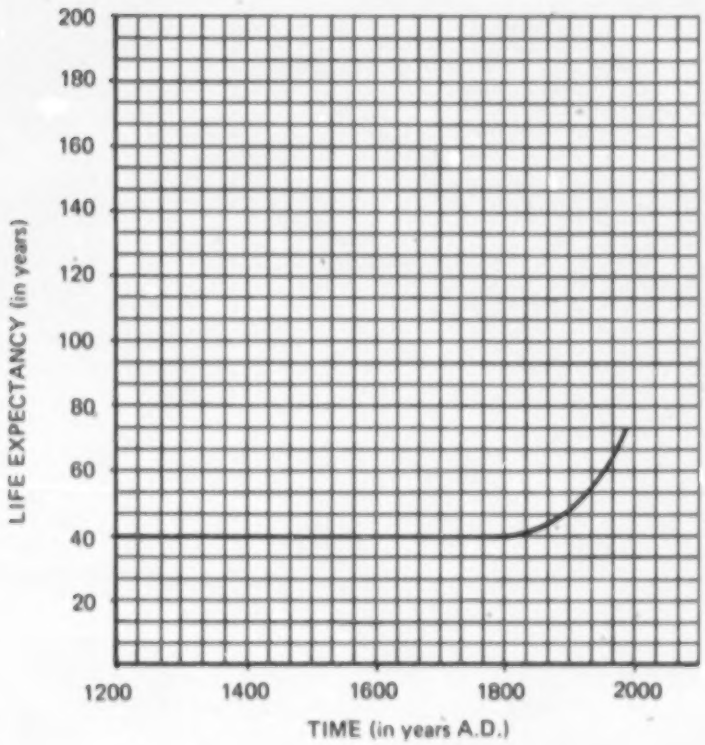
The solid line on the graph below shows how human life expectancy has changed in the U.S. since 1920. The dotted line shows one prediction of how it will change during the next twenty years.



What could cause a decline in life expectancy during the next twenty years?

The graph below shows how life expectancy has changed since 1200 A.D.

ES
03-Exc 7-3-3B



1. Use this graph to predict the life expectancy in 2100 A.D.
2. Explain why your prediction is likely to be inaccurate.

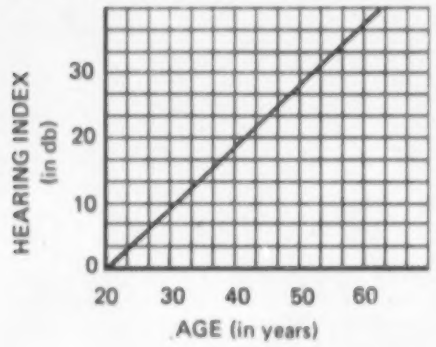
Rex works on an automobile assembly line. When he returns home, he immediately flips on his TV, using the remote control switch. The sound level is the same as when he turned the set off the night before. He notices that to hear it at first, he has to turn the volume up. But after several hours it sounds too loud, so he must turn the volume down again. Explain what might be causing this daily change in Rex's hearing.

ES
03-Exc 8-1-1B

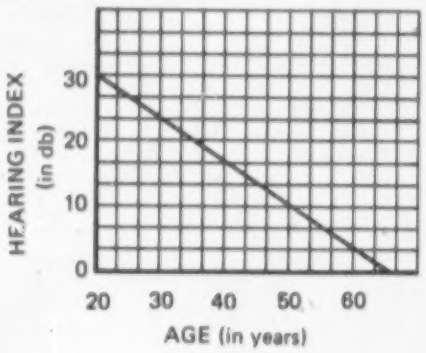
ES
03-Exc 8-1-2B

Delores wanted to measure how people's hearing changed with age. She measured the hearing index of a number of people. She operationally defined *hearing index* as the decibel level of the quietest sound that the person could hear. Which of the graphs below shows how the hearing index, as Delores defined it, usually changes with age?

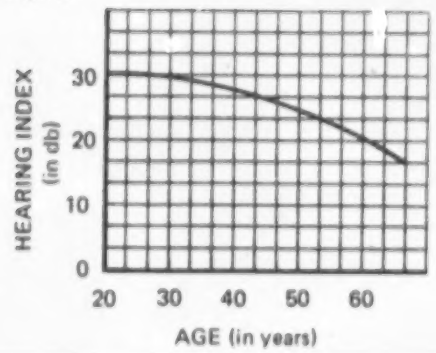
Graph a.



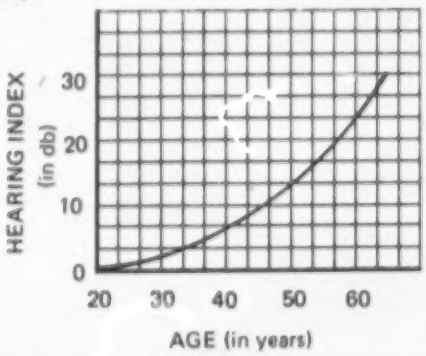
Graph b.



Graph c.



Graph d.



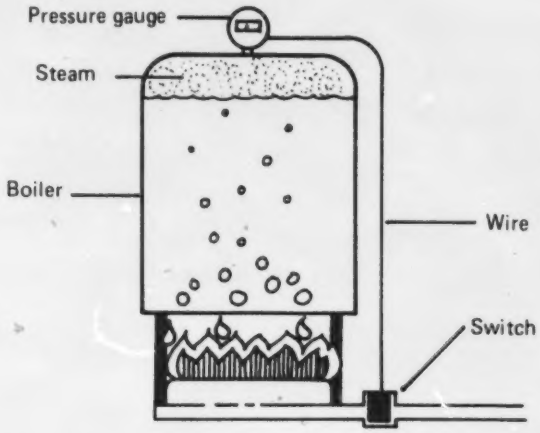
Well-Being WB

People think of a furnace and a thermostat as a system. Define the term *system.*

WB 01-Core-1B

The boiler system diagramed below can be thought of as a system.

WB 01-Core-2B

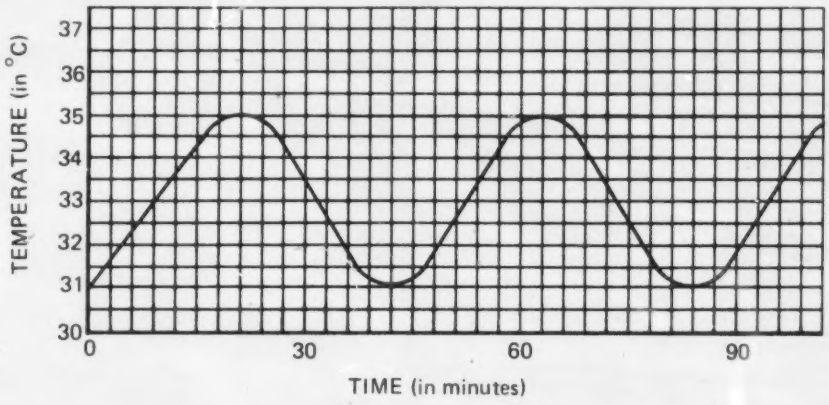


The heat is turned on under a steam boiler. Steam builds up inside the boiler to a preset pressure. The pressure gauge senses that the preset pressure has been reached and turns off the heat switch. When the pressure inside the boiler has dropped, the pressure gauge turns on the heat switch to increase the pressure again.

1. Name the stimuli and responses that make this a negative feedback system.
2. Explain how they operate to make this a negative feedback system.

Kim measured the temperature inside an incubator used to keep eggs warm before they hatch. She plotted the temperatures recorded in the incubator on the grid shown below.

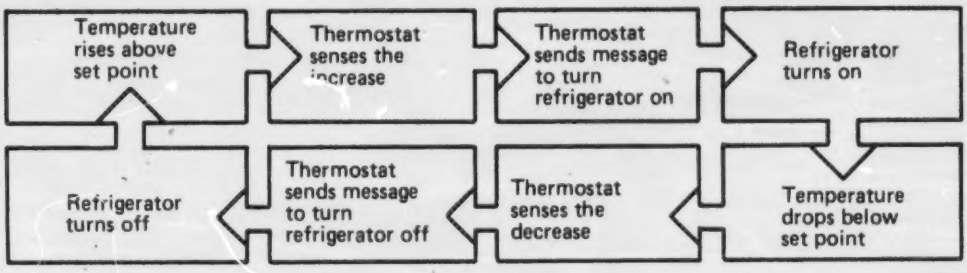
WB 01-Core-3B



At what temperature (set point) is the thermostat set to control the temperature of the incubator?

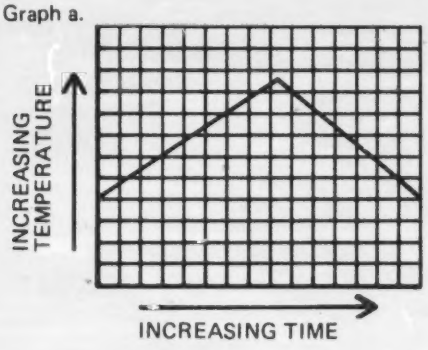
WB
01-Core-4B

A thermostat is used to regulate the temperature inside a refrigerator. The diagram below shows how the refrigerator-thermostat system works.

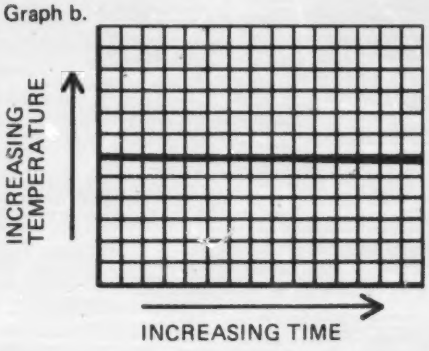

Temperature rises above set point
Thermostat senses the increase
Thermostat sends message to turn refrigerator on
Refrigerator turns on
Temperature drops below set point
Thermostat senses the decrease
Thermostat sends message to turn refrigerator off
Refrigerator turns off

Write the letter of the graph that best shows how the temperature changes inside a closed refrigerator.

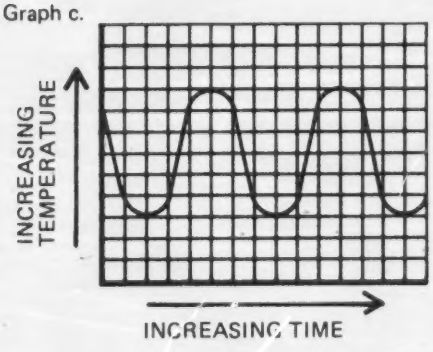
Graph a.



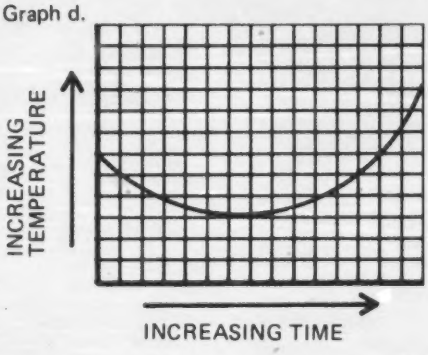
Graph b.



Graph c.



Graph d.



WB
01-Core-5B

Imagine that the thermostat that controls the temperature in an apartment gets broken in February.

1. Predict one thing that might happen to the temperature of the apartment if this occurred.
2. Explain why it would happen.

The formula used to calculate the amount of heat needed to change the temperature of water is

WB
01-Core-6B

calories = mass (grams) of water X change in temperature (°C).

How many calories of heat are required to raise the temperature of 540 grams of water from 25°C to 37°C? Show your calculations.

Operationally define *calorie.*

WB
01-Core-7B

How many calories equal 1 Calorie?

WB
01-Core-8B

Select the statement that best indicates what happens in the body to the energy in food which has been eaten.

WB
01-Core-9B

a. Most of the energy is used in doing work; the rest is used to keep the body at the correct temperature.
b. The energy is either used to do work or stored as fat that can be used as an energy source between meals.
c. All of the energy is used to keep the body at a constant temperature.
d. Some of the energy is used to keep the body warm, and the rest is used to do work.
e. The energy is used to keep the body temperature constant and to do work; any that is left over is stored as fat.

Cheryl wants to lose some weight without taking drugs. What are two different ways she can do this?

WB
01-Core-10B

Steve wants to gain 10 pounds for the football season. He has adjusted his diet so that his food energy input is 3,800 Calories per day. His body required 3,100 Calories each day for temperature control and for the exercise he does. How long will it take him to gain 10 pounds? Show all your calculations. (Note: A pound of body fat represents about 3,500 Calories of stored energy.)

WB
01-Core-11B

Doctors usually advise patients who are trying to lose weight to eat a variety of different foods. Foods which are often suggested are leafy vegetables, meats, yellow vegetables, and fruit. Why do doctors stress eating many different kinds of food, as well as decreasing the total food intake?

WB
01-Core-12B

Your teacher will observe you for this check when he can.

WB
01-Core-13B

WB
01-Core-14B

Your teacher will observe you for this check when he can.

WB
01-Core-15B

Your teacher will observe you for this check when he can.

WB
01-Core-16B

Your teacher will observe you for this check when he can.

WB
01-Core-17B

Your teacher will observe you for this check when he can.

WB
01-Exc 1-1-1B

Which of the following is used to measure units of heat energy?

a. liter
b. temperature
c. newton
d. degree
e. calorie

WB
01-Exc 1-1-2B

In Excursion 1-1, you found that a single burning peanut gave off more heat than five burning marshmallows. Select the best possible conclusion that you could draw from this activity.

a. All foods contain different amounts of heat energy.
b. All foods give off the same amount of heat energy when they are burned.
c. Other foods probably give off differing amounts of heat energy when burned, but I cannot be sure because I tested only peanuts and marshmallows.
d. I cannot predict whether all foods give off different amounts of heat energy when burned because I tested only marshmallows and peanuts.

WB
01-Exc 1-1-3B

During an activity, Orsen determined that a burning bean released 8,540 calories. How many Calories is this?

WB
01-Exc 1-2-1B

Suppose you were trying to reduce the number of Calories you consume. Which one of the following foods would it probably be best for you to avoid?

a. Tuna fish, which is rich in proteins
b. Baked potatoes, which are mostly starch
c. Pecan pie, which contains a lot of fats

1. Squash may be prepared in several ways. Which method of preparation gives you the largest number of Calories? **WB 01-Exc 1-2-2B**
   a. Boiled squash
   b. Baked squash
   c. Fried squash
   d. No difference
2. Explain your answer.

Mrs. Winters said her doctor put her on a well-balanced diet. **WB**
1. Does that mean only that she is counting Calories? **01-Exc 1-2-3B**
2. Explain your answer.

Lori has kept track of the amount of time she spent doing various activities. Part of her activity chart is shown below. What is the total number of Calories she used doing those activities? Show your work. **WB 01-Exc 1-3-1B**

ACTIVITY	TIME (in hours)	CALORIES USED (per pound of body weight per hour)	BODY WEIGHT (in pounds)
Running	1	3.3	140
Sitting quietly	9	0.2	140

Recently you tested the effect of a solution on the germination of corn seeds. You were asked to use a control. Why is it necessary to use a control when doing such activities?

WB 02-Core-1B

Name three different chemicals or types of chemicals found in cigarette smoke.

WB 02-Core-2B

The diagrams below show the epithelial tissue from the windpipes of three different people. One person is a heavy smoker, one smokes a moderate amount, and one is a nonsmoker. Match the letters of the proper diagrams below with the numbers of the labels.

WB 02-Core-3B

Types of Smokers

1. Heavy smoker
2. Moderate smoker
3. Nonsmoker

Diagrams of Tissue

Diagram a.

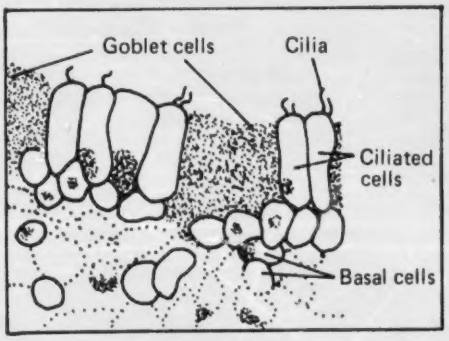


Diagram b.

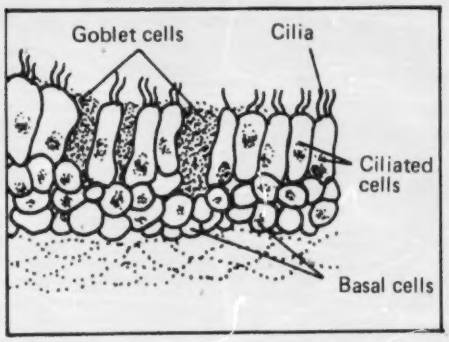
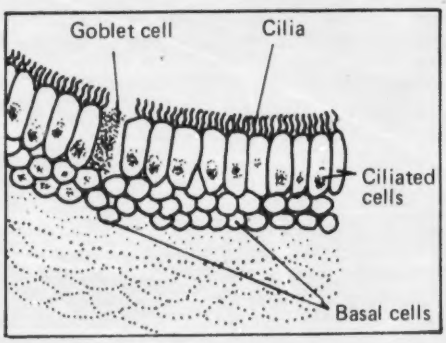


Diagram c.



WB
02-Core-4B

Which of the following is not an effect that smoking has on the body?

a. It decreases the heartbeat rate.
b. It reduces the number and activity of the cilia in the epithelium of the windpipe.
c. It increases the mucus and the chances of having a cough or other respiratory problems.
d. It increases the breathing rate.
e. It causes a loss in the control of cell production in the epithelium.

WB
02-Core-5B

During the month of July, Jeff kept track of all the lemonade that was sold at camp and the number of campers who caught colds. As the weeks passed, more of the campers drank lemonade and more of them had colds.

1. Do these data prove that drinking lemonade increased the campers' chances of catching colds?
2. Explain your answer.

WB
02-Core-6B

The following statements refer to the death rate among people who smoke. Indicate which of these statements is not correct.

a. The death rate from bronchitis and emphysema is higher for smokers than for nonsmokers.
b. The death rate for people who smoke fewer cigarettes a day is lower than the rate for those who smoke many.
c. People who smoke are more likely to die of lung cancer than nonsmokers.
d. The death rate for people who stop smoking is just as high as the death rate for those who keep smoking.

WB
02-Core-7B

There are many persons who have a physical dependence on alcohol. Give an operational definition for *physical dependence.*

WB
02-Core-8B

Give an operational definition of *psychological dependence.*

WB
02-Core-9B

In each of the following situations

(a) indicate whether the person described is physically or psychologically dependent on the drug and
(b) explain your answer.

Situation 1. Terry began to have a cup of tea after lunch every day. He said he enjoyed it, and it helped him relax before going back to work. Now he drinks several cups during the afternoon. He says that he reaches for his tea cup whenever he gets anxious or has nothing to do.

Situation 2. Keith was given medication for stomach pains. While he was taking this medicine, he was not bothered by the pain. Then his doctor found that his stomach pains were caused by an allergy to milk. He eliminated milk from his diet and stopped taking the medication. He found his pain was much worse than before unless he took the medicine daily.

Mrs. Smith is pregnant. Her doctor advised her to stop using antibiotics to control a sinus congestion until after her baby is born. Explain why the doctor is concerned about the drugs Mrs. Smith takes while she is pregnant.

WB
02-Core-10B

Terry took a drug that affected his sleeping habits. In other words, the drug kept him from feeling sleepy for 24 hours. Diagram and label a possible negative feedback system that might no longer be working because of this drug.

WB
02-Core-11B

Name two different ways that messages are sent in the human body.

WB
02-Core-12B

People use the terms *drug use* and *drug abuse*. Explain the difference between drug use and drug abuse.

WB
02-Core-13B

The parts listed below are found in many plants and animals. Arrange these parts in order from the simplest part to the most complex.

1. Organ
2. Cell
3. Organ system
4. Tissue

WB
02-Exc 2-1-1B

Most plants and animals are composed of many different kinds of cells instead of just one kind of cell. Why is this necessary?

WB
02-Exc 2-1-2B

State three advantages of an interview over a written questionnaire.

WB
02-Exc 2-2-1B

Professional interviewers are trained to be certain when conducting a series of interviews to ask exactly the same questions in exactly the same tone of voice. Why is it necessary to train an interviewer to be able to do this?

WB
02-Exc 2-2-2B

Much research is carried out using written questionnaires rather than personal interviews, despite the advantages of an interview. What are several advantages of using a written questionnaire?

WB
02-Exc 2-2-3B

WB
02-Exc 2-2-4B

Barry wanted to do a survey to determine student attitudes toward cigarette smoking. The first part of his questionnaire is shown below.

SURVEY OF STUDENT ATTITUDES TOWARDS CIGARETTE SMOKING

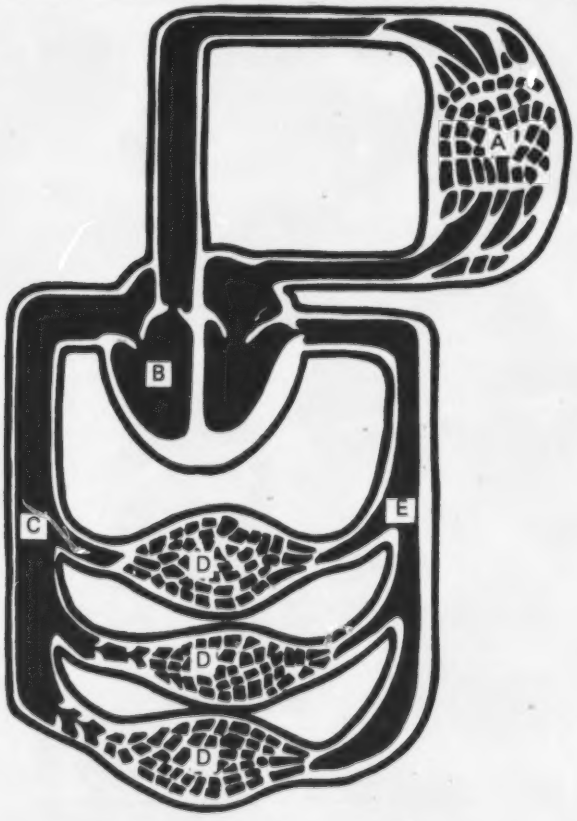
1. What is your name?
2. What is your age?
   [ ] 5-9
   [ ] 11-15
   [ ] 15 years old or older
3. You don't smoke cigarettes, do you?
   [ ] yes
   [ ] no
4. Do you think that people who smoke cigarettes are very bad?
   [ ] yes
   [ ] no

Improve this questionnaire by rewriting it and making at least three changes.

WB
02-Exc 2-3-1B

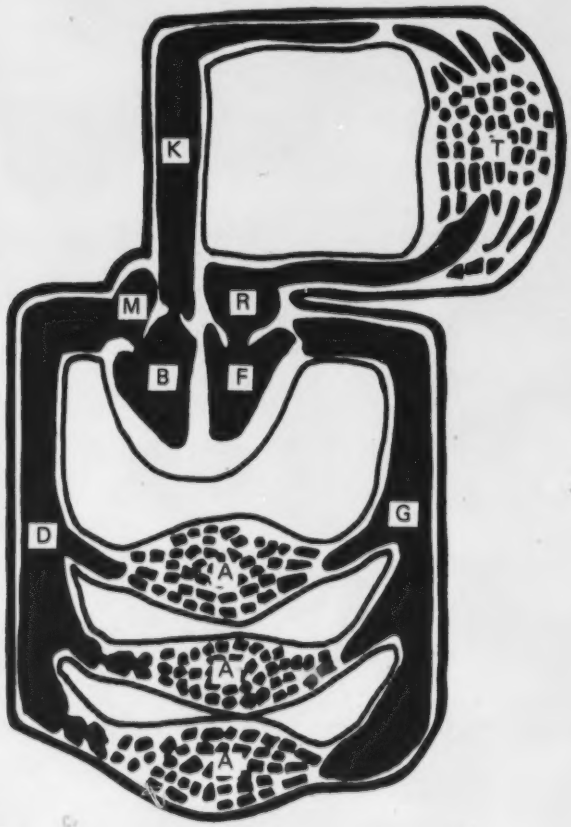
The diagram below represents the human circulatory system.

1. Name the organs indicated by letters A and B.
2. Name the kinds of blood vessels indicated by letters C, D, and E.



The diagram below represents the human circulatory system. Indicate the path that blood flows through the body by listing, in order, the letters that correspond to the various parts. Start and finish with the part labeled D.

WB
02-Exc 2-3-2B



State two things red blood cells do which make them so important to the functioning of the body.

WB
02-Exc 2-3-3B

Some drugs are depressants. Define *depressant*.

WB
03-Core-1B

A friend of Rene's has taken a depressant. List two effects of the drug that Rene might notice in her friend.

WB
03-Core-2B

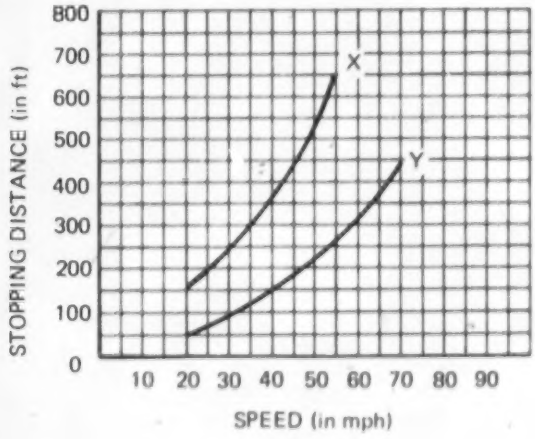
Physicians often use depressants to treat people who are sick. Select the helpful effects of depressants which might cause a physician to prescribe them.

WB
03-Core-3B

a. To increase alertness
b. To reduce restlessness
c. To help a person react faster
d. To prevent epileptic seizures
e. To lower high blood pressure

The graph below shows the distances required to stop a car at different speeds. One line shows stopping distances for a normal driver. The other line shows stopping distances for the same driver after he has been drinking.

WB
03-Core-4B



1. Which curve represents the stopping distances for the driver after he has been drinking?
2. Explain why the driver has different stopping-distance curves before and after drinking.

Some people argue that testing a driver's reaction time is better than a blood-alcohol level test. Both of them determine whether a drinking driver should be charged with drunken driving.

WB
03-Core-5B

1. Why is the blood-alcohol test not always fair?
2. Why might testing a driver's reaction time be fairer?

WB
03-Core-6B

Three different people, all about the same size, took the drugs listed below.

Person 1	1 sleeping pill and 1 oz whiskey
Person 2	2 sleeping pills
Person 3	2 oz whiskey

1. Which person is likely to be affected most by these drugs?
2. Explain the reason for your answer.

WB
03-Core-7B

Indicate which of the items in the list below are useful properties of a stimulant prescribed by a doctor.

a. Relieves severe pain
b. Helps cure an upset stomach
c. Increases the appetite
d. Reduces drowsiness
e. Relaxes people who tend to be nervous

WB
03-Core-8B

Stimulants can cause physical and psychological changes in a person who uses them. Record the letters of any of the following which can be the effects of stimulants.

a. Physical dependence on the drug
b. Sudden exhaustion or collapse because energy reserves are used up
c. Difficulty in sleeping
d. Increased heartbeat rate
e. Increase of appetite

WB
03-Core-9B

Tom's older brother told him that he drinks many cups of coffee, which is a stimulant, so that he can stay awake longer to study for exams. He says coffee eliminates the need for sleep caused by late study sessions.

1. Is coffee really an effective substitute for sleep?
2. Explain your answer.

WB
03-Core-10B

Jack says that his brother is beginning to develop a tolerance to a drug that he's been taking. What does it mean to say that a person is developing a tolerance to a drug?

WB
03-Core-11B

Match each drug with its possible source.

Hallucinogenic Drugs	Possible Sources
1. Mescaline	a. Fungus (mold) on grains
2. LSD	b. Hemp plant
3. Marijuana	c. Mushrooms
4. Psilocybin	d. Peyote cactus
	e. None of these

A scientist is interested in measuring the effects of marijuana on a person's ability to work on an assembly line. Below is his operational definition of the *ability to work on an assembly line.*

A person's assembly line working ability is detected and measured by his score on a written test of the operation of his machine. The higher his score, the greater his assembly line working ability is.

1. Is this a good operational definition of *ability to work on an assembly line*?
2. Explain your answer.

WB
03-Core-12B

Two friends who share an apartment took exactly the same amount of a hallucinogenic drug.

1. Would you expect them both to experience the same psychological effects?
2. Explain the reason for your answer.

WB
03-Core-13B

Suppose a buddy tells you that he has some LSD he wants to try. Since he knows you've been discussing the effects of hallucinogens in your science class, he asks you, "What undesirable or unpleasant things could LSD do to me?"

List at least four different things you could tell him.

WB
03-Core-14B

Althea has taken LSD, a hallucinogen, five times in the last year and has had no bad effects after any of her trips. She claims that all this talk about LSD causing bad effects is just meant to scare people.

1. Does Althea's experience prove that hallucinogens do not produce bad effects?
2. State two reasons which support your answer.

WB
03-Core-15B

Define the term *placebo.*

WB
03-Core-16B

When they test the effectiveness of a drug, scientists give some people placebos and other people the active drug. Explain why they do this.

WB
03-Core-17B

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1. What is meant by *double-blind experiment*?
2. For what reason are double-blind experiments used?

WB
03-Core-18B

Jerry wants to find out if eating before going to bed tends to keep people awake. To investigate this, he has his sister eat a peanut butter and jelly sandwich before she goes to bed every night for a week. His brother eats nothing before bedtime. During the second week, his brother eats the sandwich and his sister eats nothing before bedtime. Jerry keeps track of the length of time it takes his brother and sister to get to sleep each night for the two weeks of the experiment.

1. Is Jerry's experiment a double-blind experiment?
2. Explain your answer.

WB
03-Core-19B

WB **03-Core-20B**	Your text suggests two reasons why laws are passed. State the text's reason that each of the following laws was passed. 1. In order to search someone's home, an investigator must get a search warrant from a judge. 2. No person may buy the medicine Xeron without a prescription (permission) from a medical doctor.
WB **03-Core-21B**	In Chapter 6, you read that laws are passed for two reasons. One reason is to protect people from other people. The other reason is to support certain moral standards. 1. Does the following law fit one of the above categories? "Everyone living in Columbus must pay a city income tax." 2. If it does, explain how. If it doesn't, explain the reason that such a law might be passed.
WB **03-Exc 5-1-1B**	For each of the following, indicate whether it is an illusion (I), a delusion (D), or a hallucination (H). 1. A person on an LSD trip says he can feel the color red. 2. A person sees a mirage in the desert. 3. A person looking out the window of a stopped bus begins to feel that the bus is moving backwards when a truck outside the window moves forward. 4. A person feels that he can jump over a three story building. 5. A person believes that keeping his fingers crossed will help him get what he wants.
WB **03-Exc 5-2-1B**	The DSST was used with new and regular users of marijuana. The test could be thought of as an operational definition of *concentration* (the ability to think clearly and quickly). Explain why the DSST is an operational definition of *concentration*.
WB **03-Exc 5-3-1B**	Ken and Marty were canoeing around Lake Filet late one night. They passed a cabin in which a very loud and noisy party was going on. Ken said that it sounded like a pot party. Marty thought it sounded more like a drinking party. 1. Were the people at the party more likely to have been smoking marijuana or drinking alcohol? 2. Explain your answer.